

Salam Afouni

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Education

Columbia University

PhD in Operations Research

New York, USA

Sept. 2023 - Present

- **Advisor:** Christian Kroer
- **Relevant Courses:** Algorithmic Game Theory, Optimization, Market Design, Stochastic Modeling, Analysis of Algorithms

American University of Beirut

B.E. in Industrial Engineering, OR track

Beirut, Lebanon

Aug. 2019 - May 2023

- Minor in Applied Mathematics
- Graduated with High Distinction. Cumulative GPA **4.14**
- **Relevant Courses:** Operations Research, Advanced Optimization Techniques, Numerical Computing, Numerical Linear Algebra, Discrete Events Simulation, Algorithmic Graph Theory, Data Analytics for Operations Research

Experience

Research Assistant

Coffee and Convexity Lab - Columbia University

New York, USA

Sept. 2023 - Present

- **Research Interests:** Mechanism Design, Game Theory, Optimization, Economics and Computation
- Specific: Pacing Equilibrium in Auctions, Nash Equilibrium, Market Equilibrium, Equilibrium Computation, No-regret Learning

Research Assistant

Control and Optimization Laboratory - American University Beirut

Beirut, Lebanon

Oct. 2022 - Sept 2023

- Worked with Prof. Dany Abou Jaoude on the problem of distributed resource allocation over graphs with uncertainty
- Developed a distributed algorithm for fair resource allocation with improved performance under constant step-size
- **Academic areas:** Distributed Optimization, Resource Allocation

Research Assistant

Adaptive Systems Laboratory - EPFL

Remote, Switzerland

Oct. 2022 - June 2023

- Studied the relationship between Nash equilibrium and Pareto optimal solutions for the multi-objective optimization problem
- Investigated a biologically-inspired design for the competition problem
- **Academic areas:** Min-Max Optimization, Multi-Objective Optimization

Research Intern - EPFL Excellence in Engineering Fellowship Program

Adaptive Systems Laboratory - EPFL

Lausanne, Switzerland

July. 2022 - Sept. 2022

- Worked under the supervision of Prof. Ali H. Sayed and Dr. Flavio Pavan on the problem of Optimization Over Competing Networks
- Formulated the local and global distributed optimization problems in the LMS setting
- **Academic areas:** Adaptive and Distributed Optimization, Data-driven Optimization, Game Theory

Publications

Afouni, S., Černý, J., Ling, C. K., & Kroer, C. (2025). Commitment to sparse strategies in two-player games. In *Proceedings of the aaai conference on artificial intelligence* (Vol. 39, pp. 13502–13509).

 <https://github.com/CoffeeAndConvexity/SparseEquilibria>

Teaching

IEOR 4004 **Fall 2025**, Teaching Assistant for Optimization Models and Methods

Columbia

University

CSOR 4231 **Spring 2024**, Teaching Assistant for Analysis of Algorithms

Columbia

University

Projects

Course Projects

NY, USA

Columbia University

- Coalition Formation in Auctions via Social Learning
- The Connection between Stable Matching and Optimal Transport

Spring 2025

Spring 2024

Course Projects

Beirut, Lebanon

American University of Beirut

- Machine Learning for Crowdfunding Success
- Queuing System Analysis for Optimal Server Allocation at Checkouts in Spinneys Supermarket, Lebanon
- Gradient Descent Convergence Guarantee by the Stable Manifold Theorem
- Movie Recommendation System
- Cost Optimization: A Poisson Process and A Markov Chain Approach

May 2023

November 2022

December 2021

November 2021

May 2021

Honors and Awards

2023 **LebNet EiC Scholarship**, LebNet Program

USA

2019-2023 **Dean's Honor List**, American University of Beirut

Lebanon

2020-2023 **Francois Hamze Scholarship**, American University of Beirut

Lebanon

2022 **EPFL Excellence in Engineering Fellowship**, EPFL

Switzerland

Service

Reviewer for AAAI (2026)

Ongoing

- Women in Engineering (WIE), AUB - member.
- IEEE, AUB - member.
- Institute of Industrial and Systems Engineers, AUB - member.
- Mathematics Society, AUB - member.

Member of the IEOR PhD Council

Ongoing

- Women in Engineering (WIE), AUB - member.
- IEEE, AUB - member.
- Institute of Industrial and Systems Engineers, AUB - member.
- Mathematics Society, AUB - member.

Skills

Programming Languages Python, MATLAB, R

Numerical and Optimization Libraries Gurobi, CVXPY, Matplotlib, NumPy, SciPy, pandas

Soft Skills Academic writing, Presentation skills, Leadership skills, Hands-on learning

Languages

English Professional proficiency

IELTS 8

French Bilingual Proficiency

Arabic Native Proficiency